IN THE CLAIMS

Please cancel claims 22-29 without prejudice.

Please amend claims 1-21 as follows:

1. (currently amended) A process for olefin oligomerization in a reactor, ~~said~~the process comprising the steps of:

(a) providing a reaction mixture in ~~said~~the reactor, ~~said~~the reaction mixture comprising:

(i) at least one reactant comprising at least one olefin monomer and optionally hydrogen and

(ii) a catalyst system suitable for the oligomerization of olefin monomers;

(b) contacting ~~said~~the olefin monomer and ~~said~~the catalyst system in a reaction zone;

(c) monitoring the process by using Raman spectrometry equipment to provide an output signal representative of one or more chemical components of the reaction; and

(d) recovering an oligomer.

2. (currently amended) The olefin oligomerization process of claim 1, wherein ~~said~~the output signal is representative of a concentration of one of ~~said~~the reactants or ~~said~~the oligomer.

3. (currently amended) The olefin oligomerization process of claim 1, ~~further~~ comprising the step of adjusting the olefin oligomerization process in response to the output signal provided by the Raman spectrometry equipment.

4. (currently amended) The olefin oligomerization process of claim 1, wherein the olefin oligomerization process is adjusted by adjusting the amount within ~~said~~the reaction mixture of at least one of ~~said~~the reactants, ~~said~~the oligomer or ~~said~~the catalyst system.

5. (currently amended) The olefin oligomerization process of claim 1, wherein ~~said~~the Raman spectrometry equipment is operatively connected to a Raman fiber optic probe that is in contact with ~~said~~the reaction or ~~said~~the polyolefin.

6. (currently amended) The olefin oligomerization process of claim 5, wherein ~~said~~the Raman fiber optic probe ~~is an InPhotonics probe~~two or more fused silica fiber optic cables within a protective metal sheath.

7. (currently amended) The olefin oligomerization process of claim 5, wherein ~~said~~the Raman spectrometry equipment comprises low resolution Raman spectrometry equipment.

8. (currently amended) The olefin oligomerization process of claim 7, wherein ~~said~~the Raman low resolution spectrometry equipment has a resolution in the range of from about 15 wavenumbers to about 30 wavenumbers.

9. (currently amended) The olefin oligomerization process of claim 1, wherein ~~said~~the reactants comprise hydrogen.

10. (currently amended) The olefin oligomerization process of claim 1, wherein ~~said~~the process is a trimerization process.

11. (currently amended) The olefin oligomerization process of claim 1, wherein ~~said~~the monomer is ethylene and ~~said~~the oligomer is 1 – hexene.

12. (currently amended) The olefin oligomerization process of claim 1, wherein ~~said~~the process is performed in two or more reactors connected in series, wherein effluent from an upstream reactor is provided as input to a downstream reactor, wherein ~~said~~the monitoring step comprises determining a concentration of ~~said~~the monomer in ~~said~~the effluent by Raman spectrometry equipment, and ~~said~~the adjusting step comprises providing an amount of monomer or comonomer in addition to ~~said~~the effluent to ~~said~~the downstream reactor.

13. (currently amended) A method for monitoring and controlling an oligomerization process comprising:

~~(a)~~ contacting in a reaction zone suitable conditions a reaction mixture comprising monomer and a catalyst system;

~~(b)~~ forming an oligomer;

~~(c)~~ making a first measurement of a concentration of ~~said~~ the monomer using Raman spectrometric equipment; and

~~(c)~~ adjusting at least one oligomerization condition in response to first measurement.

14. (currently amended) The method of claim 13, wherein ~~said~~the first measurement is obtained before or within ~~said~~the reaction zone.

15. (currently amended) The method of claim 14, further comprising the steps of:

~~(c)~~ making a second measurement of a concentration of ~~said~~the monomer using Raman spectrometric equipment;

~~(d)~~ comparing ~~said~~the concentration with ~~said~~the second concentration; and

wherein ~~said~~the adjusting step at least one oligomerization condition in response to ~~said~~the comparing step.

16. (currently amended) The method of claim 15 wherein ~~said~~the second measurement is obtained within or after ~~said~~the reaction zone.

17. (currently amended) The method of claim 13 wherein ~~said~~the first measurement is obtained from ~~said~~the reaction zone in both gas phase using Raman spectrometric equipment.

18. (currently amended) The method of claim 15, wherein ~~said~~the making a first measurement comprises:

obtaining a Raman spectrum of ~~said~~the reaction mixture, and

determining ~~said~~the first measurement through the use of a calibration model.

19. (currently amended) The method of claim 13, further comprising, prior to ~~step (a)~~ the contacting, the step of developing ~~said~~the calibration model using partial least squares analysis.

20. (currently amended) The method of claim 19, wherein ~~said~~the Raman spectrometry equipment is low resolution Raman spectrometry equipment.

21. (currently amended) The method of claim 20, wherein ~~said~~the low resolution Raman spectrometry equipment has a resolution of about 15 wavenumbers to about 30 wavenumbers.

22-29. (canceled).